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Tetra Tech EM Inc.

200 E. Randolph Drive, Suite 4700 ◆ Chicago, IL 60601 ◆ (312) 856-8700 ◆ FAX (312) 938-0118

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04 June 01

Ms. Callie Bolattino
On-Scene Coordinator
Office of Superfund
U.S. Environmental Protection Agency Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3590

Subject: **Letter Report**
Riverdale Chemical Site, Chicago Heights, Illinois
Contract No. 68-W0-0129, TDD No. S05-0104-003

Dear Ms. Bolattino:

The Tetra Tech EM Inc. Superfund Technical Assessment and Response Team (START) has prepared this letter report in accordance with the requirements of the above-referenced technical direction document (TDD) which the U.S. Environmental Protection Agency (U.S. EPA) assigned to START. The scope of this TDD was to collect split soil samples with the potentially responsible party's (PRP) contractor, RMT, Inc. (RMT), at the Riverdale Chemical site in Chicago Heights, Illinois. START was also tasked to provide data management, document on-site activities with written logbook notes, and prepare a letter report.

On 06 and 07 Apr 01, RMT collected approximately 70 soil samples for pesticides analysis and approximately 10 for dioxins and furans analysis. Tetra Tech collected split samples of the following RMT soil samples: 94-1, 103-2, 104-2, 111-2, 115-2, 118-2, 127-5, and 131-2. Tetra Tech labeled these samples RDC-1 through RDC-8. Seven of the eight split soil samples were analyzed for pesticides using U.S. EPA SW-846 Method 8081, and one split soil sample (RDC-2) was analyzed for dioxins and furans using U.S. EPA Method 8290. The samples were packed with ice and shipped to Paradigm Analytical Laboratories, Inc., in Wilmington, North Carolina. A table comparing the results for Tetra Tech's and RMT's samples is provided in Enclosure 1. The data validation report for the samples collected by Tetra Tech is included in Enclosure 2.

Split soil samples collected from less-contaminated areas were fully compatible with RMT sample analytical results. Split soil samples from more contaminated areas were somewhat inconsistent compared to RMT analytical results. RMT's analytical results were consistently higher than Tetra Tech's results. The variation of analytical results implies that contamination at the site is in particulate form and is therefore heterogeneous.

If you have any questions or comments about this letter report or need additional copies, please contact me at (312) 946-6475 or Thomas Kouris at (312) 946-6431.

Sincerely,

Chad Gibson
Project Manager

Enclosures (2)

cc: Lorraine Kosik, START Project Officer (letter only)
Thomas Kouris, START Program Manager (letter only)

ENCLOSURE 1

TABLE COMPARING ANALYTICAL RESULTS
RIVERDALE CHEMICAL SITE
CHICAGO HEIGHTS, ILLINOIS

(One Page)

TABLE COMPARING ANALYTICAL RESULTS
RIVERDALE CHEMICAL SITE

Sample Code	RDC-1	94-1	RDC-2	103-2	RDC-3	104-2	RDC-4	111-2	RDC-5	115-2	RDC-6	118-2	RDC-7	127-5	RDC-8	131-2
Sampling Date	04/06/01	04/06/01	04/06/01	04/06/01	04/06/01	04/06/01	04/06/01	04/06/01	04/06/01	04/06/01	04/06/01	04/06/01	04/06/01	04/06/01	04/06/01	04/06/01
Sampling Depth (feet bcf)	1	1	2	2	2	2	2	2	7	7	2	2	5	5	2	2
Units	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g
Dioxins and Furans																
2,3,7,8-TCDD	NA	NA	2.970	320.000 D,E	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PeCDD	NA	NA	61.1	15,000 D	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDD	NA	NA	6.54	350	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HxCDD	NA	NA	51.4	96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HxCDD	NA	NA	9.9	94	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDD	NA	NA	262	550	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OCDD	NA	NA	2.390	7,300 E	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	0.418 U	410 E	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PeCDF	NA	NA	3.92	26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PeCDF	NA	NA	8.04	92	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDF	NA	NA	20.5	27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HxCDF	NA	NA	8.4	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HxCDF	NA	NA	15.8	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HxCDF	NA	NA	6.34	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDF	NA	NA	1.320	120	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HpCDF	NA	NA	12.7	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OCDF	NA	NA	802	470	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total TEF	NA	NA	3.040		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sample Code	RDC-1	94-1	RDC-2	103-2	RDC-3	104-2	RDC-4	111-2	RDC-5	115-7	RDC-6	118-2	RDC-7	127-5	RDC-8	131-2
Units	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Pesticides																
alpha-BHC	8.0 U	23 U	NA	NA	6,200 U	440 U	1,900 U	220 U	40 U	6.6 U	7.8 U	21 U	8.2 U	21 U	80 U	4.3 U
beta-BHC	8.0 U	23 U	NA	NA	6,200 U	860 P,C	1,900 U	220 U	40 U	5.9 J, P	7.8 U	21 U	8.2 U	21 U	80 U	4.3 U
delta-BHC	8.0 U	23 U	NA	NA	6,200 U	440 U	1,900 U	220 U	40 U	6.6 U	7.8 U	21 U	8.2 U	21 U	80 U	4.3 U
gamma-BHC(Lindane)	8.0 U	23 U	NA	NA	6,200 U	440 U	1,900 U	220 U	40 U	6.6 U	7.8 U	21 U	8.2 U	21 U	80 U	4.3 U
Heptachlor	8.0 U	21 J	NA	NA	6,200 U	3,600 C	3,800	11,000 C,E	40 U	39	7.8 U	21 U	8.2 U	21 U	80 U	43.0 U
Aldrin	8.0 U	2,100 C	NA	NA	6,200 U	4,300 C	7,000	19,000 C	200	340 E	7.8 U	21 U	8.2 U	21 U	310	200
Heptachlor epoxide	8.0 U	23 U	NA	NA	6,200 U	1,800 C	1,900 U	160 J, P	40 U	6.6 U	7.8 U	21 U	8.2 U	21 U	80 U	4.3 U
Endosulfan I	8.0 U	23 U	NA	NA	6,200 U	440 U	1,900 U	220 U	40 U	6.6 U	7.8 U	21 U	8.2 U	21 U	80 U	4.3 U
Dieldrin	8.0 U	85	NA	NA	15,000	24,000 E,C	2,700	5,600 C	91	85	7.8 U	49 P	8.2 U	29 J, P	180	75
4,4'-DDE	8.0 U	44 U	NA	NA	6,200 U	460 J,C	1,900 U	290 J, P	40 U	13 U	7.8 U	41 U	8.2 U	41 U	80 U	83 U
Endrin	8.0 U	44 U	NA	NA	6,200 U	860 U	1,900 U	420 U	40 U	13 U	7.8 U	41 U	8.2 U	41 U	80 U	8.3 U
4,4'-DDD	8.0 U	44 U	NA	NA	6,200 U	860 U	1,900 U	1400 C	40 U	10 J	7.8 U	41 U	8.2 U	41 U	80 U	83 U
Endosulfan II	8.0 U	44 U	NA	NA	6,200 U	860 U	1,900 U	420 U	40 U	13 U	7.8 U	41 U	8.2 U	41 U	80 U	8.3 U
4,4'-DDT	8.0 U	44 U	NA	NA	6,200 U	2,700 C	1,900	5,300 C	40 U	15	7.8 U	41 U	8.2 U	41 U	80 U	83 U
Methoxychlor	8.0 U	230 U	NA	NA	6,200 U	4,400 U	1,900 U	1100 J, C	40 U	66 U	7.8 U	21 U	8.2 U	21 U	80 U	43 U
Toxaphene	400 U	2,300 U	NA	NA	31,000 U	44,000 U	1,900 U	22,000 U	200 U	660 U	39 U	210 U	41 U	210 U	400 U	430 U
Chlordane	400 U	NA	NA	NA	31,000 U	NA	1,900 U	NA	200 U	NA	39 U	NA	41 U	NA	400 U	NA
Endrin aldehyde	8.0 U	44 U	NA	NA	6,200 U	860 U	1,900 U	420 U	40 U	13 U	7.8 U	41 U	8.2 U	41 U	80 U	8.3 U
Endosulfan sulfate	8.0 U	44 U	NA	NA	6,200 U	860 U	1,900 U	420 U	40 U	13 U	7.8 U	41 U	8.2 U	41 U	80 U	8.3 U
Endrin Ketone	8.0 U	44 U	NA	NA	6,200 U	1,400 C	1,900 U	440 C	40 U	13 U	7.8 U	41 U	8.2 U	41 U	80 U	8.3 U

Notes

94-1	RMT Inc. sample identification code
bcf	Below clean fill
C	Identity confirmed by gas chromatography/mass spectroscopy analysis
D	Results from diluted extract, no qualifications required
E	Result exceeds calibration range, substitute "D" value and flag "J" as estimated
J	Estimated value
NA	Not applicable
P	Quantitative results on the two columns considerably different, indicating matrix interference on at least one column, result estimated and may be false positive
pg/g	Picogram per gram
RDC-1	Tetra Tech sample identification code
U	Not detected above listed quantitation limit
µg/kg	Microgram per kilogram

ENCLOSURE 2

DATA VALIDATION REPORT
RIVERDALE CHEMICAL SITE
CHICAGO HEIGHTS, ILLINOIS

(12 Pages)

ENCLOSURE 2
DATA VALIDATION REPORT
RIVERDALE CHEMICAL SITE
CHICAGO HEIGHTS, ILLINOS

1.0 INTRODUCTION

The Tetra Tech EM Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) for Region 5 validated pesticides analytical data for seven split soil samples and dioxins and furans analytical data for one split soil sample collected on 6 Apr 01 during a site evaluation of the Riverdale Chemical site in Chicago Heights, Illinois. The split samples were analyzed under Work Order No. G368-25 by Paradigm Analytical Laboratories, Inc. (Paradigm), using U.S. Environmental Protection Agency (U.S.EPA) SW-846 Method 8081 for pesticides and U.S. EPA SW-846 Method 8290 for polychlorinated dibenzo-p-dioxins (PCDD) and polychlorinated dibenzofurans (PCDF) analysis.

The data were validated in general accordance with the U.S. EPA's "Contract Laboratory Program National Functional Guidelines for Organic Data Review" dated Oct 99. Section 2.0 discusses the results of the data validation, and Section 3.0 presents an overall assessment of the data. Paradigm's summary of sample analytical results is attached.

2.0 DATA VALIDATION RESULTS

Data validation consisted of a review of the following quality control (QC) parameters: holding times, initial and continuing calibrations, blank results, surrogate results, matrix spike and matrix spike duplicate sample (MS/MSD) results, laboratory control sample (LCS) results, internal standard results, and target compound identification. Each parameter is discussed below.

2.1 HOLDING TIMES

All samples were analyzed within the holding time limit of 14 days for extraction and 40 days for analysis.

2.2 INITIAL AND CONTINUING CALIBRATIONS

The relative standard deviations (and, for the PCDD and PCDF analyses, the signal to noise ratios and ion abundance ratios) from the initial calibrations were within the QC limits. The continuing calibration results were also within QC limits for the pesticides analyses, the endrin/DDT breakdown results were within QC limits.

2.3 BLANK RESULTS

A method blank was run with each analytical batch and in the proper sequence. Pesticides were not detected in any blank at a concentration exceeding the instrument detection limit. Several PCDDs and PCDFs were detected in the blanks, but the associated sample contained a much higher concentration of these PCDDs and PCDFs; therefore, no data qualifications are warranted.

2.4 SURROGATE RESULTS

Recoveries for the surrogates were within the QC limits specified by the laboratory.

2.5 MS/MSD RESULTS

No MS/MSD analysis was performed for the PCDD or PCDF analyses. Because the extraction and cleanup standards serve the same purpose as MS analysis, no qualifications are warranted for this lack of information.

For the pesticides analysis, the MS/MSD analysis was performed on sample RDC-6. All precision and accuracy results were within QC limits.

2.6 LCS RESULTS

LCSs were analyzed for both pesticides and PCDD and PCDF analyses. Results were within respective QC limits. The PCDD and PCDF analysis does not require the use of a LCS, but in this case, it substitutes for the omitted MS/MSD analysis.

2.7 INTERNAL STANDARD RESULTS

The recoveries, retention times, and ion abundances for the internal standards were within the various laboratory and method QC limits.

2.8 TARGET COMPOUND IDENTIFICATION

Review of the sample chromatograms and mass spectra revealed that PCDDs and PCDFs were correctly identified in the samples.

The pesticides analysis was complicated by the presence of nontarget compounds in the samples. For example, sample RDC-6 included an unknown compound that produced a large peak in the heptachlor window on column A and the beta-BHC window on column B. This and similar cases were correctly labeled as nondetects. The reported pesticides appeared in their respective windows on both columns at similar concentrations and are considered to be correctly identified. Because of the presence of this interference, it is preferable to confirm pesticide identity with mass spectroscopy whenever the concentrations are high enough to allow the use of this technique.

3.0 OVERALL ASSESSMENT OF DATA

The overall quality of the data generated by Paradigm is acceptable for use as reported.

ATTACHMENT

PARADIGM SUMMARY OF SAMPLE ANALYTICAL RESULTS
RIVERDALE CHEMICAL SITE
CHICAGO HEIGHTS, ILLINOIS

(Eight Pages)

Results for Pesticides
by EPA 8081

Client Sample ID: RDC-1
Client Project ID: Riverdale Chemical
Lab Sample ID: 18006
Lab Project ID: G368-25
Matrix: Soil %SOLIDS 77.3

Date Collected: 4/6/01
Date Received: 4/7/01
Date Analyzed: 4/26/01
Analyzed By: CLP
Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
alpha-BHC	8.0	BQL
beta-BHC	8.0	BQL
delta-BHC	8.0	BQL
gamma-BHC (Lindane)	8.0	BQL
Heptachlor	8.0	BQL
Aldrin	8.0	BQL
Heptachlor epoxide	8.0	BQL
Endosulfan I	8.0	BQL
Dieldrin	8.0	BQL
4,4'-DDE	8.0	BQL
Endrin	8.0	BQL
DDD	8.0	BQL
Endosulfan II	8.0	BQL
4,4'-DDT	8.0	BQL
Methoxychlor	8.0	BQL
Toxaphene	40	BQL
Chlordane	40	BQL
Endrin aldehyde	8.0	BQL
Endosulfan sulfate	8.0	BQL
Endrin ketone	8.0	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
DBC	100	64	64

Comments:
BQL = Below Quantitation Limit

Reviewed By: [signature]

Results for Pesticides
by EPA 8081

Client Sample ID: RDC-3
Client Project ID: Riverdale Chemical
Lab Sample ID: 18008
Lab Project ID: G368-25
Matrix: Soil %SOLIDS 79.7

Date Collected: 4/6/01
Date Received: 4/7/01
Date Analyzed: 4/26/01
Analyzed By: CLP
Dilution: 800

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
alpha-BHC	6200	BQL
beta-BHC	6200	BQL
delta-BHC	6200	BQL
gamma-BHC (Lindane)	6200	BQL
Heptachlor	6200	BQL
Aldrin	6200	BQL
Heptachlor epoxide	6200	BQL
Endosulfan I	6200	BQL
Dieldrin	6200	**15000**
4,4'-DDE	6200	BQL
Endrin	6200	BQL
DDD	6200	BQL
Endosulfan II	6200	BQL
4,4'-DDT	6200	BQL
Methoxychlor	6200	BQL
Toxaphene	31000	BQL
Chlordane	31000	BQL
Endrin aldehyde	6200	BQL
Endosulfan sulfate	6200	BQL
Endrin ketone	6200	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
DBC	100	NA	NA

Comments:
BQL = Below Quantitation Limit
NA = Not Applicable, surrogate diluted out.

Reviewed By:

Results for Pesticides
by EPA 8081

Client Sample ID: RDC-4
Client Project ID: Riverdale Chemical
Lab Sample ID: 18009
Lab Project ID: G368-25
Matrix: Soil %SOLIDS 80.7

Date Collected: 4/6/01
Date Received: 4/7/01
Date Analyzed: 4/26/01
Analyzed By: CLP
Dilution: 250

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
alpha-BHC	1900	BQL
beta-BHC	1900	BQL
delta-BHC	1900	BQL
gamma-BHC (Lindane)	1900	BQL
Heptachlor	1900	**3800**
Aldrin	1900	**7000**
Heptachlor epoxide	1900	BQL
Endosulfan I	1900	BQL
Dieldrin	1900	**2700**
4,4'-DDE	1900	BQL
Endrin	1900	BQL
DDD	1900	BQL
Endosulfan II	1900	BQL
4,4'-DDT	1900	**1900**
Methoxychlor	1900	BQL
Toxaphene	9600	BQL
Chlordane	9600	BQL
Endrin aldehyde	1900	BQL
Endosulfan sulfate	1900	BQL
Endrin ketone	1900	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
DBC	100	NA	NA

Comments:
BQL = Below Quantitation Limit
NA = Not Applicable, surrogate diluted out.

Reviewed By:

Results for Pesticides
by EPA 8081

Client Sample ID: RDC-5
Client Project ID: Riverdale Chemical
Lab Sample ID: 18010
Lab Project ID: G368-25
Matrix: Soil %SOLIDS 78.1

Date Collected: 4/6/01
Date Received: 4/7/01
Date Analyzed: 4/23/01
Analyzed By: CLP
Dilution: 5

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
alpha-BHC	40	BQL
beta-BHC	40	BQL
delta-BHC	40	BQL
gamma-BHC (Lindane)	40	BQL
Heptachlor	40	BQL
Aldrin	40	**200**
Heptachlor epoxide	40	BQL
Endosulfan I	40	BQL
Dieldrin	40	**91**
4,4'-DDE	40	BQL
Endrin	40	BQL
DDD	40	BQL
Endosulfan II	40	BQL
4,4'-DDT	40	BQL
Methoxychlor	40	BQL
Toxaphene	200	BQL
Chlordane	200	BQL
Endrin aldehyde	40	BQL
Endosulfan sulfate	40	BQL
Endrin ketone	40	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
TCMX	100	15	15

Comments:
BQL = Below Quantitation Limit

Reviewed By:

Results for Pesticides
by EPA 8081

Client Sample ID: RDC-6
Client Project ID: Riverdale Chemical
Lab Sample ID: 18011
Lab Project ID: G368-25
Matrix: Soil %SOLIDS 79.5

Date Collected: 4/6/01
Date Received: 4/7/01
Date Analyzed: 4/26/01
Analyzed By: CLP
Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
alpha-BHC	7.8	BQL
beta-BHC	7.8	BQL
delta-BHC	7.8	BQL
gamma-BHC (Lindane)	7.8	BQL
Heptachlor	7.8	BQL
Aldrin	7.8	BQL
Heptachlor epoxide	7.8	BQL
Endosulfan I	7.8	BQL
Dieldrin	7.8	BQL
4,4'-DDE	7.8	BQL
Endrin	7.8	BQL
DDD	7.8	BQL
Endosulfan II	7.8	BQL
4,4'-DDT	7.8	BQL
Methoxychlor	7.8	BQL
Toxaphene	39	BQL
Chlordane	39	BQL
Endrin aldehyde	7.8	BQL
Endosulfan sulfate	7.8	BQL
Endrin ketone	7.8	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
TCMX	100	53	53

Comments:
BQL = Below Quantitation Limit

Reviewed By:

Results for Pesticides
by EPA 8081

Client Sample ID: RDC-7
Client Project ID: Riverdale Chemical
Lab Sample ID: 18012
Lab Project ID: G368-25
Matrix: Soil %SOLIDS 75.4

Date Collected: 4/6/01
Date Received: 4/7/01
Date Analyzed: 4/26/01
Analyzed By: CLP
Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
alpha-BHC	8.2	BQL
beta-BHC	8.2	BQL
delta-BHC	8.2	BQL
gamma-BHC (Lindane)	8.2	BQL
Heptachlor	8.2	BQL
Aldrin	8.2	BQL
Heptachlor epoxide	8.2	BQL
Endosulfan I	8.2	BQL
Dieldrin	8.2	BQL
4,4'-DDE	8.2	BQL
Endrin	8.2	BQL
DDD	8.2	BQL
Endosulfan II	8.2	BQL
4,4'-DDT	8.2	BQL
Methoxychlor	8.2	BQL
Toxaphene	41	BQL
Chlordane	41	BQL
Endrin aldehyde	8.2	BQL
Endosulfan sulfate	8.2	BQL
Endrin ketone	8.2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
TCMX	100	62	62

Comments:
BQL = Below Quantitation Limit

Reviewed By:

Results for Pesticides
by EPA 8081

Client Sample ID: RDC-8
Client Project ID: Riverdale Chemical
Lab Sample ID: 18013
Lab Project ID: G368-25
Matrix: Soil %SOLIDS 76.7

Date Collected: 4/6/01
Date Received: 4/7/01
Date Analyzed: 4/18/01
Analyzed By: CLP
Dilution: 10

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
alpha-BHC	80	BQL
beta-BHC	80	BQL
delta-BHC	80	BQL
gamma-BHC (Lindane)	80	BQL
Heptachlor	80	BQL
Aldrin	80	**310**
Heptachlor epoxide	80	BQL
Endosulfan I	80	BQL
Dieldrin	80	**180**
4,4'-DDE	80	BQL
Endrin	80	BQL
DDD	80	BQL
Endosulfan II	80	BQL
4,4'-DDT	80	BQL
Methoxychlor	80	BQL
Toxaphene	400	BQL
Chlordane	400	BQL
Endrin aldehyde	80	BQL
Endosulfan sulfate	80	BQL
Endrin ketone	80	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
DBC	100	NA	NA

Comments:
BQL = Below Quantitation Limit
NA = Not Applicable, surrogate diluted out.

Reviewed By:

Method 8290

RDC-2

Tetra Tech EM, Inc.

Analytical Data Summary Sheet

Analyte	Amount (pg/g)	EDL (pg/g)	EMPC (pg/g)	RT (min.)	Ratio	Qualifier
2,3,7,8-TCDD	2970			29:14	0.80	E
1,2,3,7,8-PeCDD	61.1			33:05	1.53	
1,2,3,4,7,8-HxCDD	6.54			35:26	1.18	
1,2,3,6,7,8-HxCDD	51.4			35:30	1.19	
1,2,3,7,8,9-HxCDD	9.90			35:42	1.19	
1,2,3,4,6,7,8-HpCDD	262			38:23	1.05	
OCDD	2390			42:03	0.86	
2,3,7,8-TCDF	ND	0.418				
1,2,3,7,8-PeCDF	3.92			32:20	1.47	DPE
2,3,4,7,8-PeCDF	8.04			32:54	1.51	
1,2,3,4,7,8-HxCDF	20.5			34:46	1.21	
1,2,3,6,7,8-HxCDF	8.40			34:52	1.21	
2,3,4,6,7,8-HxCDF	15.8			35:18	1.26	
1,2,3,7,8,9-HxCDF	6.34			35:59	1.28	
1,2,3,4,6,7,8-HpCDF	1320			37:17	1.08	
1,2,3,4,7,8,9-HpCDF	12.7			38:57	1.13	
OCDF	802			42:17	0.83	
Total TCDDs	3400					
Total PeCDDs	662					
Total HxCDDs	828					
Total HpCDDs	514					
Total TCDFs	728		728			
Total PeCDFs	416					DPE
Total HxCDFs	860					
Total HpCDFs	2720					
ITEF TEQ (ND=0)	3040		3040			
ITEF TEQ (ND=½)	3040		3040			

Client Information

Project Name:	Riverdale Chemical
Sample ID:	RDC-2

Laboratory Information

Project ID:	G368-25
Sample ID:	18007
Collection Date/Time:	06-Apr-01 10:25
Receipt Date:	07-Apr-01
Extraction Date:	10-Apr-01
Analysis Date:	11-Apr-01

Sample Information

Matrix:	Soil	
Weight / Volume:	11.44	Grams
Solids / Lipids:	85.5	%
Original pH :	NA	
Batch ID:	WG5365	
Filename:	a11apr01a-8	
Retchk:	a11apr01a-1	
Begin ConCal:	a11apr01a-1	
End ConCal:	a11apr01a-15	
Initial Cal:	m8290-052699m	